DOCKET NO: 368-011B PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	
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K. Park et al.	:	
	:	
Serial No: Unassigned	:	Art Unit: 1711
(DIV of USSN 08/855,499)	:	
	:	
Filed: March 16, 2001	:	Examiner: J. Cooney
	:	
For: HYDROGEL COMPOSITES AND SUPERPOROUS HYDROGEL COMPOSITES HAVING FAST SWELLING, HIGH MECHANICAL STRENGTH, AND SUPER-ABSORBENT PROPERTIES	:	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination on the merits, kindly enter the following amendments prior to calculating the fee:

IN THE TITLE:

Replace the current title with the new title as follows:

--SUPER-ABSORBENT HYDROGEL FOAMS--.

IN THE ABSTRACT:

Kindly replace the abstract with the new abstract forwarded herewith as a separate sheet.

IN THE SPECIFICATION:

Insert the following paragraph after the title:

--Reference to Related Application

The present application is a Rule 53(b) divisional of U.S. Serial No. 08/855,499, now U.S. Patent No.--

Page 12: Delete the first paragraph, which discusses Fig. 3, and delete the last paragraph extending onto page 13, which discusses Figs. 6A and 6B. These photographs are cancelled.

IN THE DRAWINGS:

Cancel Figs. 3, 6A and 6B.

IN THE CLAIMS:

Kindly cancel claims 1-55 appearing in the parent application filed herewith and enter new claims 1 to 18 as follows:

--1. A hydrogel foam formed from at least one ethylenically-unsaturated monomer and a multi-olefinic crosslinking agent in the presence of a blowing agent under foaming conditions effective to produce a porous polymer network therein, which network has an average pore size of 10 μm to 3000 μm.

2. The hydrogel of claim 1, wherein the ratio of multi-olefinic crosslinking agent to monomer is in the range of 0.01:100 to 10:100.

3. The hydrogel of claim 1, wherein the at least one ethylenically-unsaturated monomer is selected from the group consisting of (meth)acrylic acid, salts of (meth)acrylic acid, esters of (meth)acrylic acid, salts and acids of esters of (meth)acrylic acid, amides of (meth)acrylic acid, N-alkyl amides of (meth)acrylic acid, salts and acids of N-alkyl amides of (meth)acrylic acid, N-vinyl pyrrolidinone, acrylamide, acrylamide derivatives, methacrylamide, methacrylamide derivatives, and mixtures thereof.

4. The hydrogel of claim 1, wherein the at least one ethylenically-unsaturated monomer is selected from the group consisting of acrylamide (AM), N-isopropylacrylamide (NIPAM), 2-hydroxyethyl methacrylate (HEMA), 2-hydroxypropyl methacrylate (HPMA), N-vinyl pyrrolidinone (VP), acrylic acid (AA), 2-acrylamido-2-methyl-1-propanesulfonic acid (AMPS), 3-sulfopropyl acrylate potassium salt (SPAK), 2-(acryloyloxy)ethyltrimethyl-ammonium methyl sulfate (ATMS), inorganic salts thereof, and mixtures thereof.

5. The hydrogel of claim 1, wherein the crosslinking agent is selected from the group consisting of N,N'-methylene-bisacrylamide, ethylene glycol di(meth)acrylate, piperazine diacrylamide, glutaraldehyde, epichlorohydrin, crosslinking agents containing 1,2-diol structures, crosslinking agents containing functionalized peptides, and crosslinking agents containing proteins.

6. The hydrogel of claim 1, which has a swelling ratio in the range of 2 to 1,000.

7. The hydrogel of claim 1, which has a compression modulus in the range of 0.01 to 5 kg/cm^2.

8. The hydrogel of claim 1, which has a swelling time in the range of 10 seconds to 10 hours for a sample having a size in the range of 0.01 cm^3 and larger.

9. A method for treating a disease or disorder in a human or animal patient, said method comprising introducing onto or into the body of said patient a quantity of a hydrogel material comprising a crosslinked polymer, which hydrogel material has an average pore size of 10 μm to 3000 μm.

10. The method of claim 9, wherein said hydrogel material further comprises particles of a disintegrant disposed within said crosslinked polymer.

11. The method of claim 10, wherein said disintegrant is at least one of (i) a crosslinked natural or synthetic polyelectrolyte, (ii) a crosslinked neutral hydrophilic polymer, (iii) a non-crosslinked natural or synthetic polyelectrolyte having a particulate shape, (iv) a non-crosslinked neutral hydrophilic polymer having a particulate shape, or (v) a porous inorganic material that provides wicking by capillary forces.

12. The method of claim 9, wherein said hydrogel material further comprises an effective amount of a therapeutic agent.

13. The method of claim 9, wherein said hydrogel material is introduced into a bleeding site to thereby control bleeding.

14. The method of claim 9, wherein said hydrogel material is introduced into the stomach to thereby control appetite.

15. The method of claim 9, wherein the hydrogel material forms at least a portion of an artificial body part that is introduced into the body, said artificial body part being selected from the

group consisting of artificial pancreas, artificial cornea, artificial skin, and artificial articular cartilage.

16. The method of claim 9, wherein the hydrogel material is introduced into a sub-mammary incision to thereby afford breast augmentation.

17. The method of claim 9, wherein the hydrogel material is introduced into or onto the body as a tissue engineering substrate.

18. The method of claim 9, wherein the hydrogel material is applied to a burn site as part of a burn dressing.--

REMARKS

This application is a divisional of U.S. Serial No. 08/855,499 filed May 13, 1997. Copies of the originally filed Declaration and Power of Attorney, the Revocation and Appointment of New Agent, and a Correspondence Address Change are submitted herewith. Kindly delete Jun Chen as a co-inventor of the presently claimed subject matter.

The title has been changed to better reflect the subject of the present application.

A new abstract sheet is submitted herewith to update the subject matter of the present invention.

The specification has been amended to refer to the parent application and to delete references to Figs. 3, 6A and 6B, which have been cancelled.

The newly submitted claims are the same as those cancelled by Examiner's Amendment in the CPA of the parent application. Claims 1-8 are directed to an aspect of the inventive hydrogel materials, which does not include a disintegrant. Support for the claimed subject matter is found at least in examples 1-9 and 11 at pages 28-36. New claims 9-18 are directed to therapeutic methods for using an instant hydrogel material to treat diseases or disorders in human or animal patients. Biomedical applications of the inventive hydrogel materials are discussed at pages 73-76 of the specification.

An Information Disclosure Statement and PTO Forms 1449 accompany. The Examiner is requested to transfer those references furnished and cited in the parent application to the present application.

Examination and consideration and are respectfully requested.

If, in the opinion of the Examiner, a telephone conversation could expedite prosecution, the Examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,

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I, James H. Meadows, hereby certify that this correspondence is being deposited with sufficient postage with the USPS Express Mail Post Office to Addressee service in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on March 16, 2001.
Express Mail Label No. EK275678079US Signature:

Abstract of the Disclosure

Hydrogel foams are formed from at least one ethylenically-unsaturated monomer and a multi-olefinic crosslinking agent in the presence of a blowing agent under foaming conditions. A porous polymer network is thereby produced which has an average pore size of 10 μm to 3000 μm. The invention further contemplates a method for treating a disease or disorder in a human or animal patient employing a quantity of a hydrogel material comprising a crosslinked polymer.